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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,376	07/11/2003	Julia A. Farroni	NU-202-CIP	5815
38731	7590	12/28/2004	EXAMINER	
NUFERN 7 AIRPORT PARK ROAD EAST GRANBY, CT 06026			KANG, JULIANA K	
			ART UNIT	PAPER NUMBER
			2874	

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/619,376	<b>Applicant(s)</b> FARRONI ET AL.	
	<b>Examiner</b> Juliana K. Kang	<b>Art Unit</b> 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-32 and 46-49 is/are pending in the application.
- 4a) Of the above claim(s) 33-45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 16-19, 23, 24, 26-32 and 46-49 is/are rejected.
- 7) ☒ Claim(s) 14, 15, 20-22 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/15/03</u> . | 6) <input type="checkbox"/> Other: _____  |

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1. Applicant's election with traverse of the Group I claims 1-32 and 46-49 in the reply filed on October 13, 2004 is acknowledged. The traversal is on the ground(s) that it is not unduly burdensome to the USPTO to search and prosecute all the claims in a single case. This is not found persuasive. A serious burden on the Examiner may be prima facie if the Examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search, MPEP 803. An Explanation provided in the restriction requirement is proper because the product claims and the process claims have acquired a separate status in the art. The requirement is still deemed proper and is therefore made FINAL.

2. Claims 33-45 remain withdrawn from further consideration by the Examiner pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 49 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

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regards as the invention. Please note that claim 49 recites the outer perimeter of the second cladding having an octagon shape but its preceding claim recites that the second cladding has a circular outer perimeter. Since it is not clear to the Examiner which shape the applicant is intended and it not possible for the cladding perimeter to have two different shapes, claim 49 is not treated during this time. Appropriate correction or if the Examiner misunderstood the limitations clear, explanation is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 4, 5, 12, 13, 16-19, 24, 26, 28, 29 and 46-48 are rejected under 35 U.S.C. 102(e) as being anticipated by Mazzaresse et al (U.S. Patent 6,483,973 B1).

Regarding claim 1, Mazzaresse et al disclose an optical fiber comprising: a photosensitive core (20) comprising a concentration of a first material (Ge, see column 6 lines 28-44) that increases the refractive index of the core and a concentration of a second material (F, see column 6 line 28-44) that is other than boron and that reduces the refractive index of the core; a cladding (40) disposed about the core for tending to

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confine light to the core; and at least one longitudinally extending region (47, see Fig. 5c) having a thermal coefficient of expansion (TCE) that is different from the TCE of the cladding (see column 5 lines 32-35) whereby the optical fiber is photosensitive and birefringent (no effect on polarization, see abstract).

Regarding claims 2 and 13, Mazzaresse et al show two longitudinally extending region that are disposed in diametrically opposed portions of the cladding and spaced from the core (see Fig. 5c) and outer perimeter with different shapes including a generally circular shape (see column 5 line 54 to column 6 line 20).

Regarding claims 4 and 12, Mazzaresse et al disclose silica ( $\text{SiO}_2$ ) based core doped with different material including Ge and F (see column 6 lines 28-33).

Regarding claim 5, when germanium is doped to silica, it is usually in the form of germanium dioxide (see Akasaka et al U.S. Patent 5,673,354, see column 5 lines 19-21).

Regarding claim 16, Mazzaresse et al disclose the claimed second cladding comprising an index of refraction that is less than the index of refraction of the cladding (40) (see column 7 lines 41-51).

Regarding claims 17, 18 and 26, Mazzaresse et al disclose having a rare earth including ytterbium (see column 6 lines 29-31 and 46).

Regarding claims 19 and 24, Mazzaresse et al disclose the core with a numerical aperture of 0.07 (see column 6 line 38).

Regarding claims 28 and 29, as described above Mazzaresse et al disclose the claimed invention. Furthermore, germanium is known to be photosensitive (as applicant

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stated in the disclosure), Mazzaresse et al's core which is doped with germanium inherently provides means for receiving an index grating.

Regarding claims 46-48, since Mazzaresse et al disclose the claimed invention, it would also inherently meet the limitation of having absorption per unit length that is within 15 percent of a test fiber.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3, 6-11, 23, 24, 27 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mazzaresse et al (U.S. Patent 6,483,973 B1).

Regarding claim 3, as described above Mazzaresse et al disclose the claimed invention except an index grating. Using a grating in an optical fiber art is well known in order to use the optical fiber in different applications and Mazzaresse et al's core is photosensitive. Thus, applying an index grating in Mazzaresse et al would also have been obvious to one having ordinary skill in the art to use the fiber in different optical applications that requires manipulations of optical data.

Regarding claims 6-11 and 30-32 as described above Mazzaresse et al disclose the claimed invention except a concentration of germanium dioxide of at least about 10% by weight and a concentration of fluorine of at least about 0.1% by weight. It is

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known in the art that germanium increases the index of refraction and fluorine decreases the index of refraction. Since Mazzaresse et al teach that the core can be doped with materials that can increase and decrease the index of refraction of the core and the core usually has higher index of refraction than the cladding, using any desired amount of germanium and fluorine including the claimed concentration of germanium dioxide and fluorine would have been obvious to one having ordinary skill in the art at the time the invention was made to obtain the desired optical fiber characteristics for an appropriate optical application. Also it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 23, as described above Mazzaresse et al teach the claimed limitations except Mazzaresse et al do not teach the core diameter of greater than 25 microns. It is known in the art that dispersion decreases as a core diameter is increased. Thus it would have been obvious to use a bigger diameter as claimed in Mazzaresse et al to reduce dispersion.

Regarding claim 27, as described above Mazzaresse et al teach the claimed limitations including doping the longitudinally extending regions with boron trioxide (see column 7 lines 38-40).

***Allowable Subject Matter***

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10. Claims 14, 15, 20, 21, 22, and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: The feature of claims 14, 15, 20-22 and 25 wherein the polarization beat length of less than 25 mm at a wavelength of 1550nm, cutoff wavelength of less than 1800 nanometers or V number of at least 4 at a wavelength of 1550nm to accomplish the applicant's invention, in combination with the other claimed features is not disclosed or suggested by Mazzaresse et al or by any other prior art of record.

### ***Conclusion***

12. The prior art documents submitted by applicant have been considered and made of record (note the attached copy of form PTO-1449). Please note that Tankala et al's amendment was considered but will not be made of record because it is not in a proper format. However, the Examiner was not able to review Carter et al's amendments filed on 6/23/03 and 10/7/03 because they were not available to the Examiner. Please submit the Carter et al's amendments if applicant wants them to be considered by the Examiner.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Inaba et al (U.S. Patent 6,738,549 B2) teaches polarization maintaining optical fiber having stress applying elements.



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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juliana K. Kang whose telephone number is (571) 272-2348. The examiner can normally be reached on Mon. & Fri. 10:00-6:00 and Tue. & Thur. 10:00-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
JULIANA KANG  
PRIMARY EXAMINER

12/21/04